



RESTORATION ADVISORY BOARD

Little America
August 23, 2005



AGENDA



- ▢ Introduction
- ▢ Approval of Minutes May 24, 2005
- ▢ Discussion/Questions on Environmental Restoration Project Status
- ▢ Supplemental Site Inspection (PA/SI)
- ▢ Meeting Logistics
 - ▢ Next Meeting: November 15, 2005 at Little America
- ▢ Adjournment



APPROVAL OF MINUTES

May 24, 2005

Meeting



Discussion/Questions on Environmental Restoration Project Status



SUPPLEMENTAL PRELIMINARY ASSESSMENT/ SITE INSPECTION (PA/SI)

F. E. WARREN AFB, WYOMING



Objectives of Supplemental PA/SI



Significant environmental investigations already ongoing at the Base, so:

- Identify additional areas on Base with potential for environmental contamination
- Use existing resources (historical records, aerial photographs, site knowledge) and limited sampling/analysis

Provide added assurance that all impacted sites are addressed appropriately



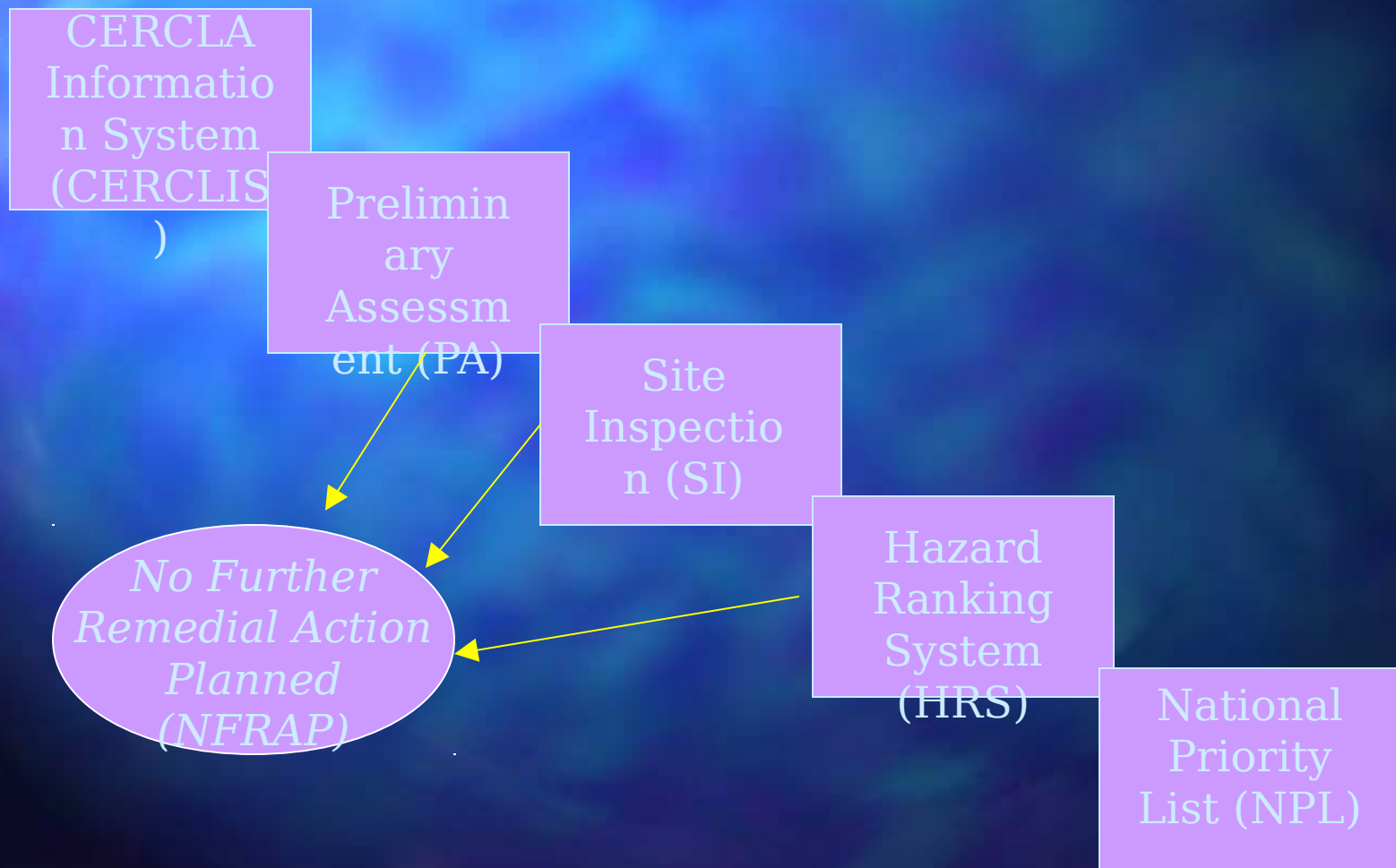
Overview of PA/SI Project



- Supplemental PA: Preliminary Assessment
 - Record Search, Site Ranking, Existing Data
- Supplemental SI: Site Inspection
 - Sample Soil and Groundwater, Risk Screening
- Designated Sites: Additional Investigation
 - Additional SI evaluation, or
 - CERCLA RI/FS, or
 - Non-CERCLA Site Investigations



CERCLA Investigation Process





PA/SI Project



- Supplemental PA: Preliminary Assessment
 - Record Search, Site Ranking, Existing Data
- Supplemental SI: Site Inspection
 - Sample Soil and Groundwater, Risk Screening
- Designated Sites: Additional Investigation
 - Additional SI evaluation, or
 - CERCLA RI/FS, or
 - Non-CERCLA Site Investigations



Supplemental PA at F. E. Warren



- Review Primary Information Sources:
 - IRP Reports
 - Base Historic Preservation Office
 - Wyoming State Archives
 - Base Historian
 - Base Museum
 - Administrative Record
- Compile Database of PA Sites
- Site Screening and Additional Evaluation
- Existing Data Coverage
- Assign Site Score (No Further Action / AOPC)



Historical Considerations - Base



- Fort Russell / Fort Warren Army Base 1867-1949
- Artillery Practice 1900-1940's
- Transition from reliance on cavalry to motorized vehicles 1920' - 1930's
- Quartermaster Corp training 1940-1947
 - 1942 population: 26,000
 - Over 122,000 graduates to support WWII
- Missile Wing 1957 - present

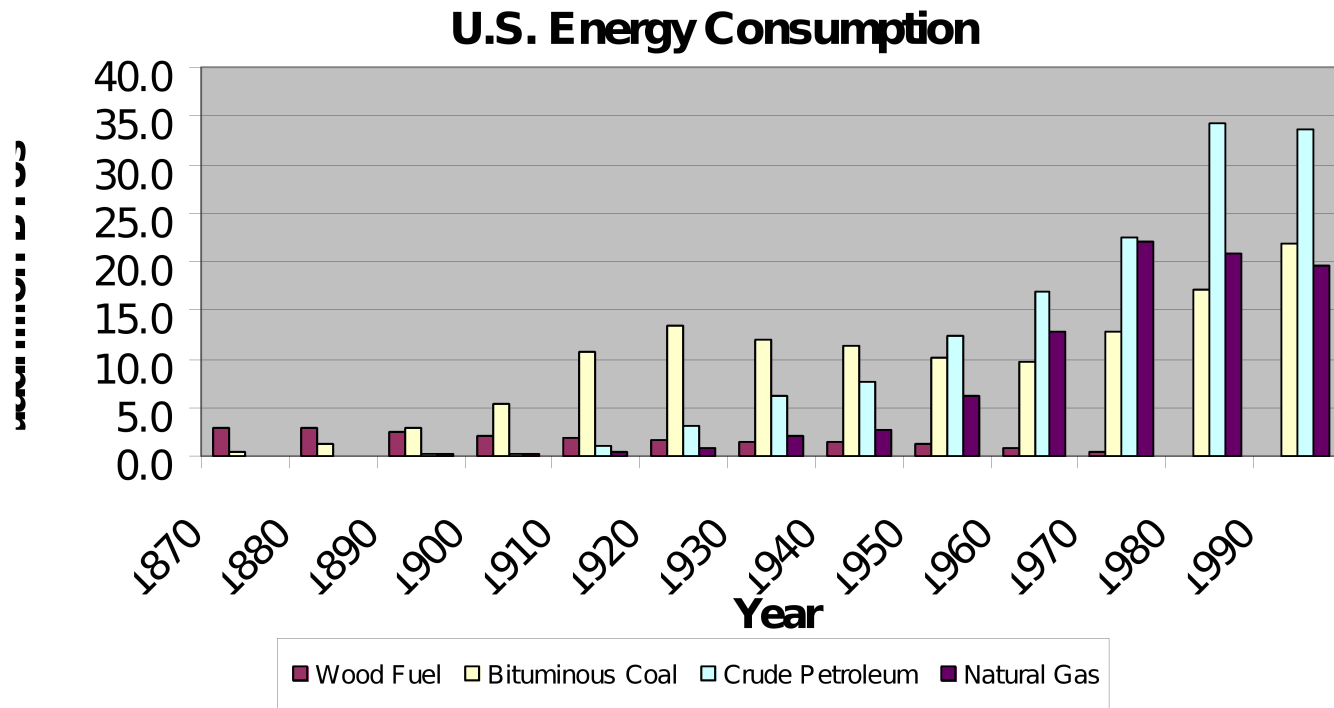


Historical Considerations - Chemicals

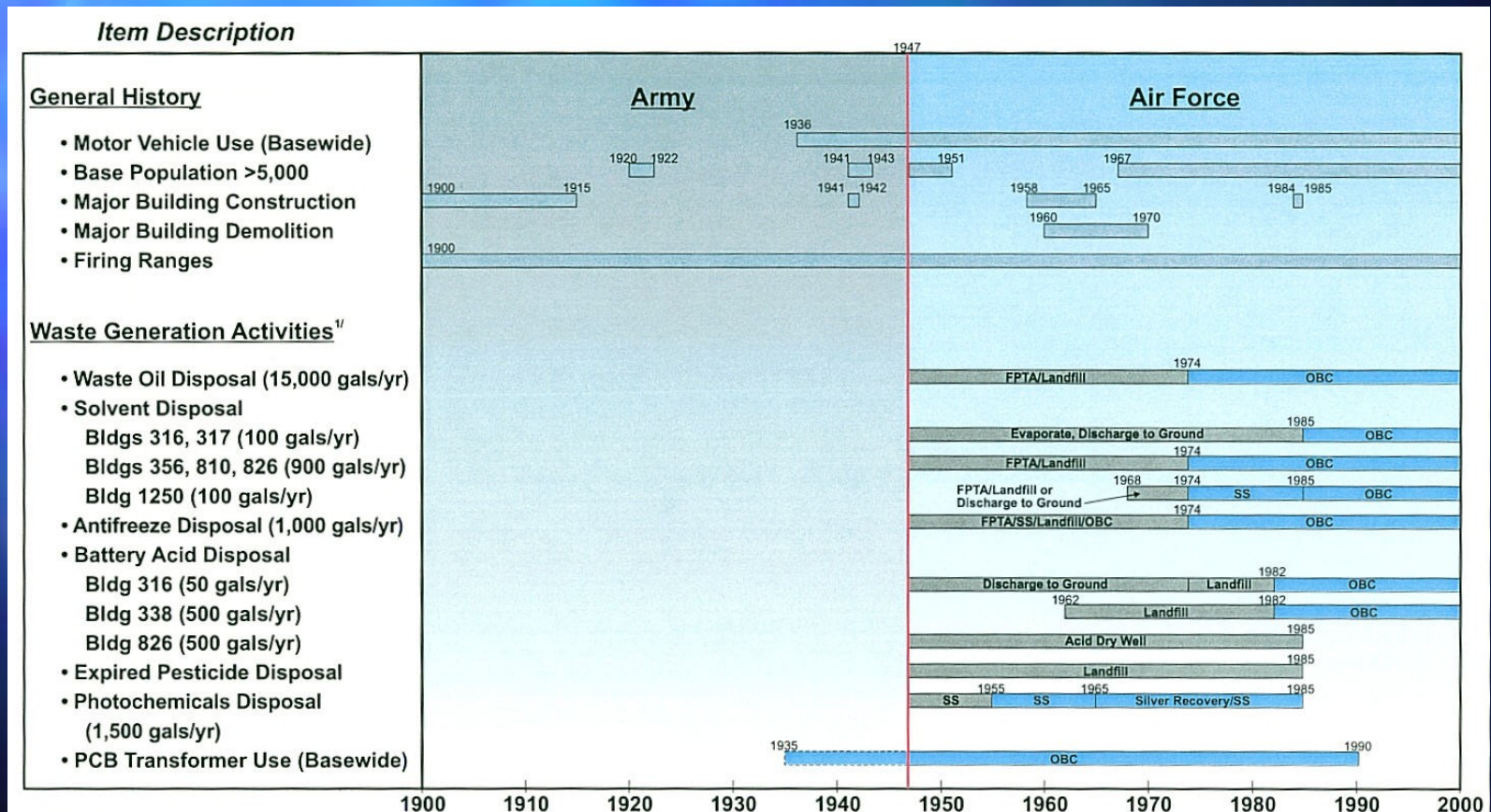


- Historical Fuels / Energy Consumption (see graph)
- Petroleum: 1930's to present
 - (pre-1860's) Whale - Coal - Crude - Gasoline (1930's)
- TCE first produced 1910; viable containers 1928
 - Degreaser, paint remover, cleaning additive
- Dry Cleaning (WWII era):
 - Benzene, naphtha - mineral spirits, Stoddard - carbon tetrachloride - TCE, PCE
- PCBs in transformers -1929; common from 1935-1976

Historical Fuels



Potential Impacts Over Time





PA Screening and Evaluation



- 263 sites compiled into PA database (similar to CERCLIS)
- Site screening:
 - Current IRP site (ongoing projects)
 - Base EM/Compliance site (USTs, PCBs)
 - Firing ranges (ongoing projects)
 - No likelihood of haz. waste (i.e. Wood Hobby Shop)
- 82 sites carried through as high priority:
 - Air photograph review
 - Site visits



Ranking of Sites



- Developed scoring mechanism in consideration of:
 - Waste types
 - Waste quantities
 - Location features: proximity to schools, creeks, etc.
- Similar to EPA's PAScore ranking tool
- Rankings range from 12 to 102; >28.5 threshold
- Suspected releases: also exceeds threshold



PA Site Ranking (examples)



Site ID	Description	Score	Basis for Including in SI
CURA 22	Sewage Treatment Plant	102	Ranking greater than 28.5
CURA 50	Oil Storage Building (and vicinity)	27	Suspected release
CURA 60	Potential Wash Rack	41	Ranking greater than 28.5
CURA 63	Wash Rack	41	Ranking greater than 28.5
CURA 80	Gas Storage Tank and Oil House (and vicinity)	23	Suspected release
HIST 06	Electrical Substation	29	Ranking greater than 28.5
PHSI 16	Auto Hobby Shop	41	Ranking greater than 28.5, suspected release
PHSI 27	DPDO Storage	20	Suspected release
PHSI 34	Auto Hobby Shop	41	Ranking greater than 28.5, suspected release
PHSI 59	Sanitary Sewer	87	Ranking greater than 28.5
PHSI 80a	Auto Hobby Shop	41	Ranking greater than



PA/SI Project



- Supplemental PA: Preliminary Assessment
 - Record Search, Site Ranking, Existing Data
- Supplemental SI: Site Inspection
 - Sample Soil and Groundwater, Risk Screening
- Designated Sites: Additional Investigation
 - Additional SI evaluation, or
 - CERCLA RI/FS, or
 - Non-CERCLA Site Investigations



Supplemental SI Study Areas



- 22 Areas of Potential Concern (AOPCs) were consolidated into 7 Study Areas (SAs):
 - SA1 Sewage Treatment Plant
 - SA2 Oil Storage Building and Vicinity (near Bldg. 321)
 - SA3 Building 356 Transportation Area
 - SA4 Building 317 and 318 Area
 - SA5 DPDO Storage Area
 - SA6 Motor Repair Shops (near Bldgs. 1284, 1270)
 - SA7 Motor Repair Shops (near Bldg. 841)



Supplemental SI Study Areas (cont'd)



- Also included in SI Project:
 - SA8 Carbon Tetrachloride in Groundwater
 - SA9 Disposal Area near RR Tracks
 - SA10 Building 286 Potential Landfill Area
- Field Sampling and Analysis
 - August-September 2003 (SA's 1, 3, 5-9)
 - November 2004 (SA10 and Phase II at SA3)
 - April 2005 (additional wells at SA4)

SI Field Sampling



SI Field Sampling – Monitoring Wells



SI Field Work - Geophysics



SI Field Work – Test Trenching and Cultural Resources





SI Data Evaluation



- Analyze soil and groundwater samples for VOCs, SVOCS, inorganics, TPH, +/- pesticides
 - Step 1: Background evaluation for inorganics (metals)
 - Step 2: Risk-Based Concentration (RBC) Screening
 - Soil data compared to USEPA Region 3 RBCs
 - Groundwater data compared to drinking water criteria (MCLs or USEPA Region 3 tap water RBCs)
 - TPH in soil/groundwater compared to WDEQ standards
 - Step 3: Soil-to-Groundwater Screening
 - Assess potential for future impacts to groundwater from site soils (EPA's SSL approach)
- Supplemental SI Report and Addendums



SI Results



- No Further Action planned:
 - SA1 Sewage Treatment Plant
 - SA5 DPDO Storage Area
 - SA6 Motor Repair Shops (near Bldgs. 1284, 1270)
 - SA7 Motor Repair Shops (near Bldg. 841)
 - SA8 Carbon Tetrachloride in Groundwater
 - SA9 Disposal Area near RR Tracks
- Additional Investigations Warranted:
 - SA2 Oil Storage Building and Vicinity (near Bldg. 321)
 - SA3 Building 356 Transportation Area
 - SA4 Building 317 and 318 Area
 - SA10 Building 286 Potential Landfill Area



PA/SI Project



- Supplemental PA: Preliminary Assessment
 - Record Search, Site Ranking, Existing Data
- Supplemental SI: Site Inspection
 - Sample Soil and Groundwater, Risk Screening
- Designated Sites: Additional Investigation
 - Additional SI evaluation, or
 - CERCLA RI/FS, or
 - Non-CERCLA Site Investigations



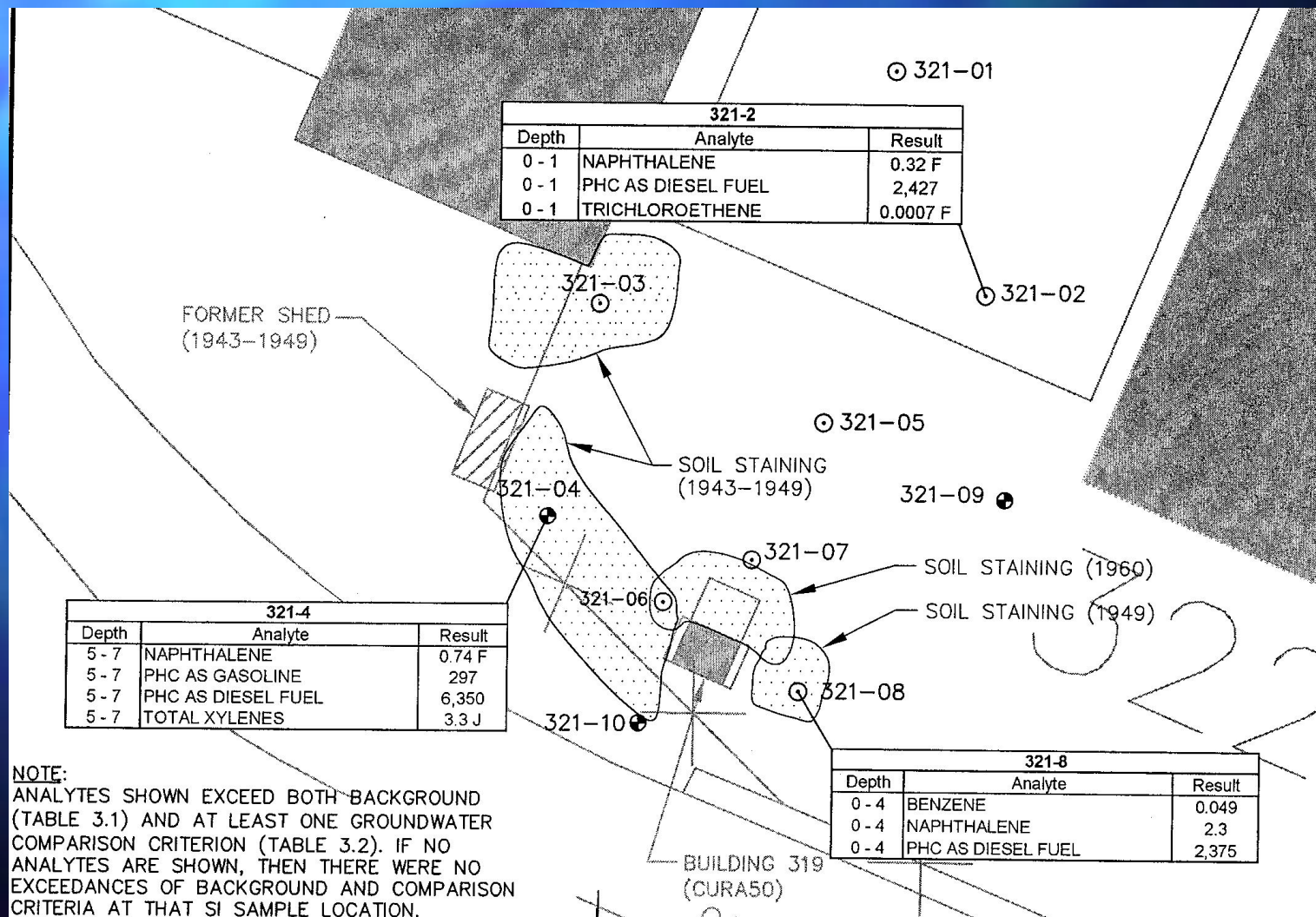
Study Area 2: Oil Storage Building and Vicinity



- Brick building identified as a 1942 oil storage building
- Vehicle maintenance 1943-1949
- Stained soils in aerial photos (1943-1960)
- Designated as SS10 (hydrocarbons site)



Study Area 2 Sample Locations



Study Area 3: Bldg. 356 Transportation Area (SS8)

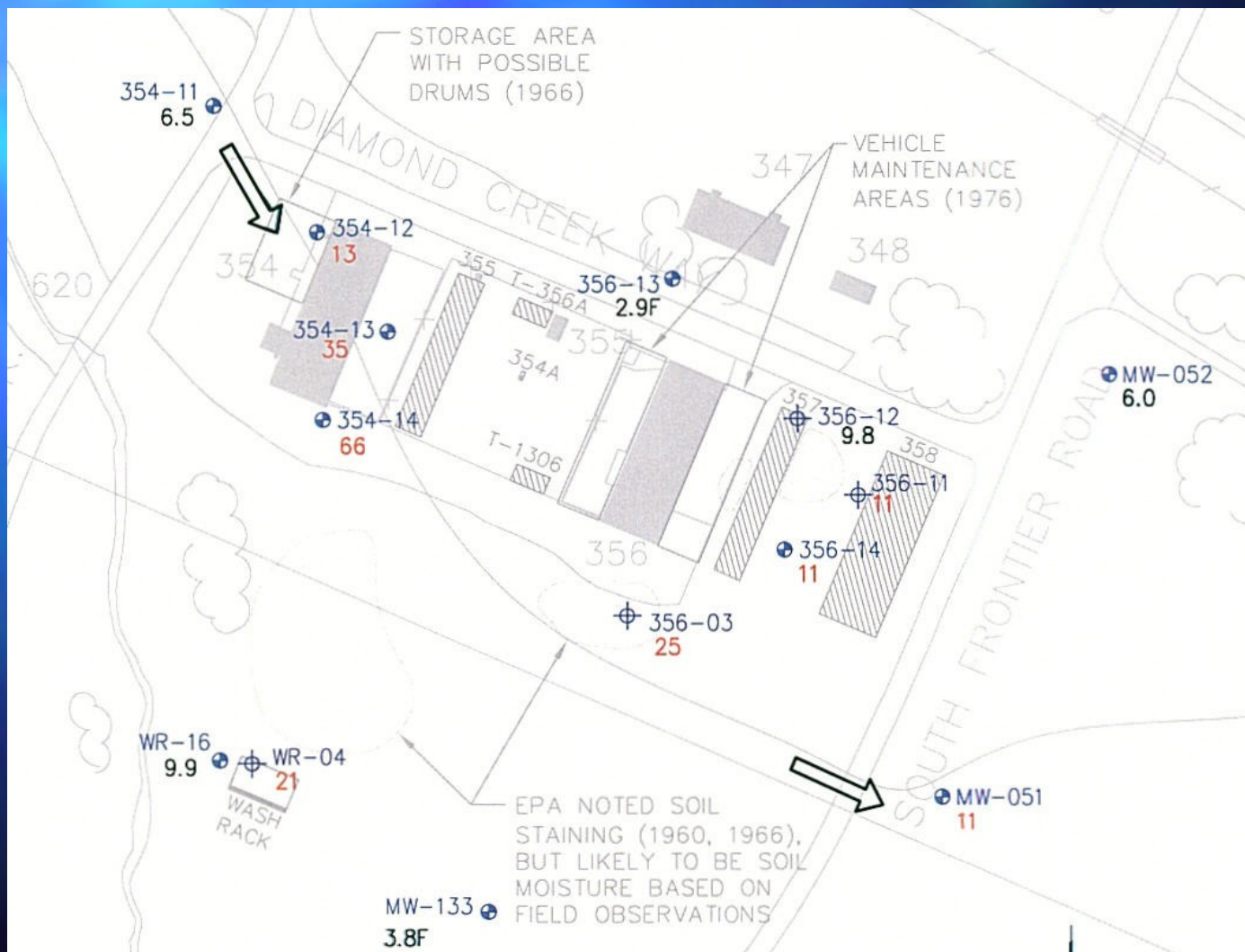


Study Area 3 - Subareas

- Wash Rack Area:
1945-1980's
- Bldg. 354 Storage
Area: 1966 air
photo
- Bldg. 356 Auto
Hobby Shops: soil
staining in 1960-
1966 air photos



Study Area 3 – Arsenic in Groundwater (2003/2004)



Study Area 4: Building 317 and 318 Area

- Industrial use from 1940s until present.
- Outdoor storage area.
- Soil staining in 1949 and 1960 air photos.
- PA sites include gasoline tank and oil house, paint shop, gas valve facility, heating shop
- Building 364 UST site was previously evaluated
- Designated as SS10 (hydrocarbons site)



318-15

Depth	Analyte	Result
0 - 1	TRICHLOROETHENE	0.0007 F

318-04

Depth	Analyte	Result
0 - 1	TRICHLOROETHENE	0.19
2.5 - 4	TRICHLOROETHENE	0.049

318-12

Depth	Analyte	Result
0 - 1	TRICHLOROETHENE	0.19
2.5 - 4	TRICHLOROETHENE	0.049

318-14

Depth	Analyte	Result
0 - 1	BENZO(A)PYRENE	0.11

318-13

Depth	Analyte	Result
0 - 1	TRICHLOROETHENE	0.0006 F

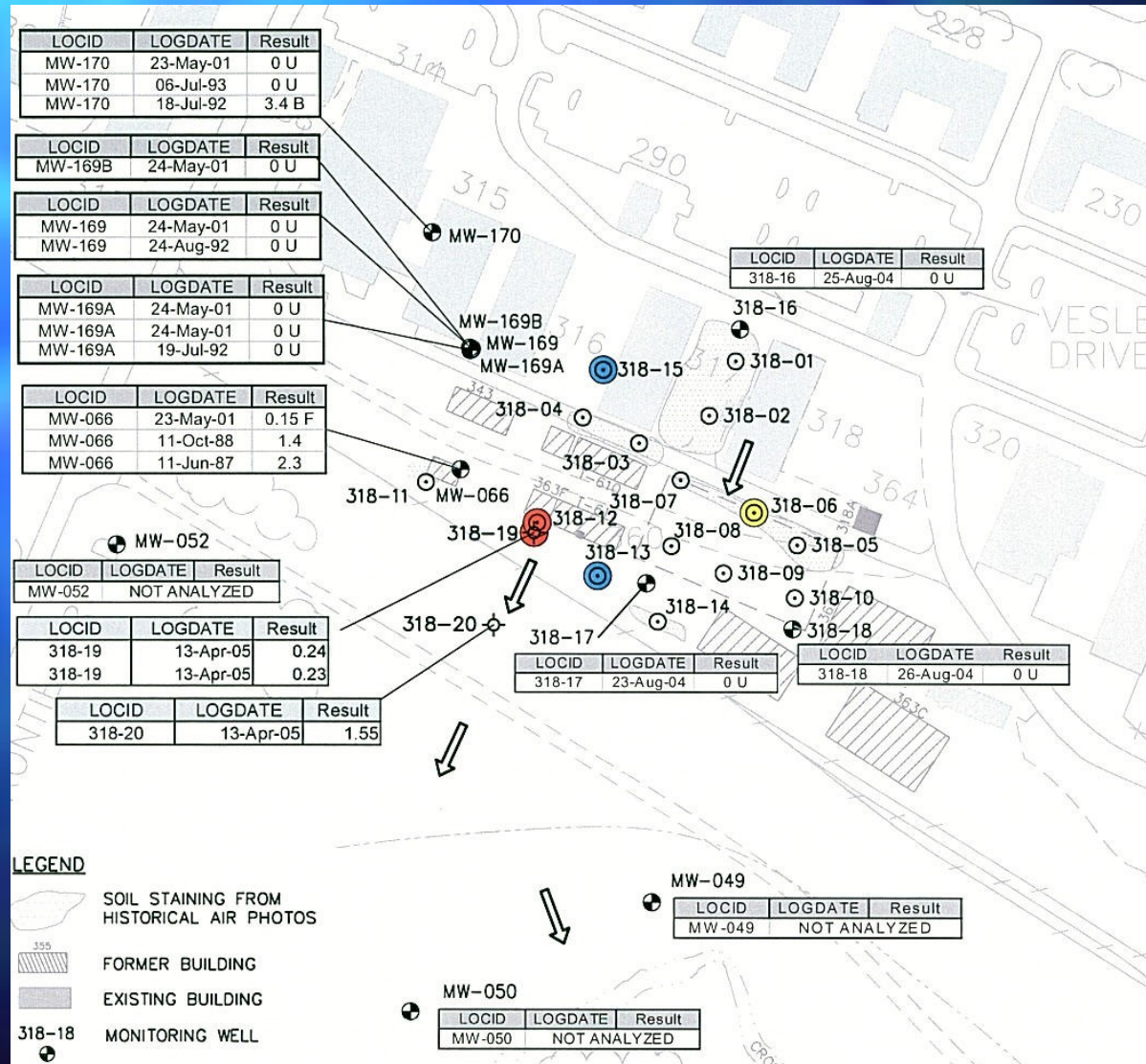
318-19

Depth	Analyte	Result	Replicate
0-4	TRICHLOROETHENE	0.3	0.18
0-4	TETRACHLOROETHENE	0.0059	0.0031
0-4	CHLOROFORM	ND	0.0012
14-19	TRICHLOROETHENE	0.0066	NA

318-6

Depth	Analyte	Result
2.5 - 4	PHC AS DIESEL FUEL	17,395 J
0 - 1	TRICHLOROETHENE	0.0045 F

Study Area 4 – TCE in Groundwater and Soil

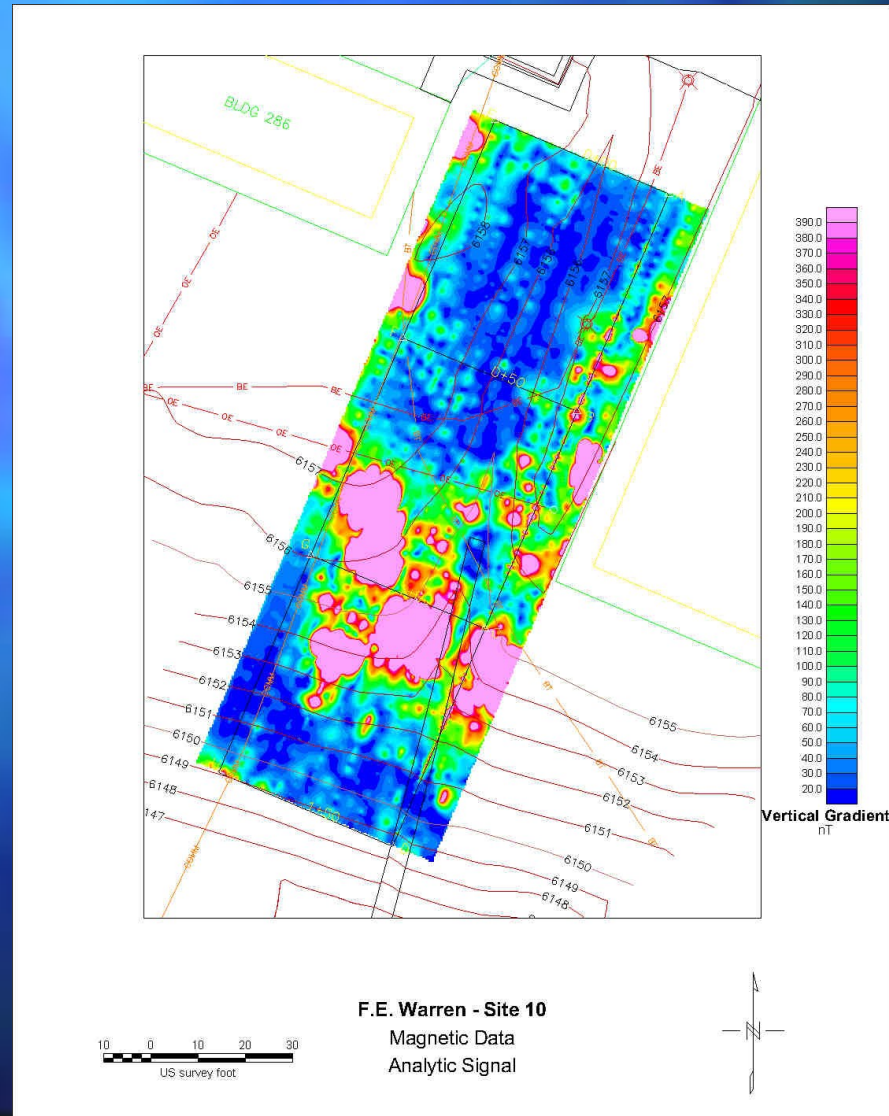


Study Area 10: Potential Landfill Area near Bldg. 286

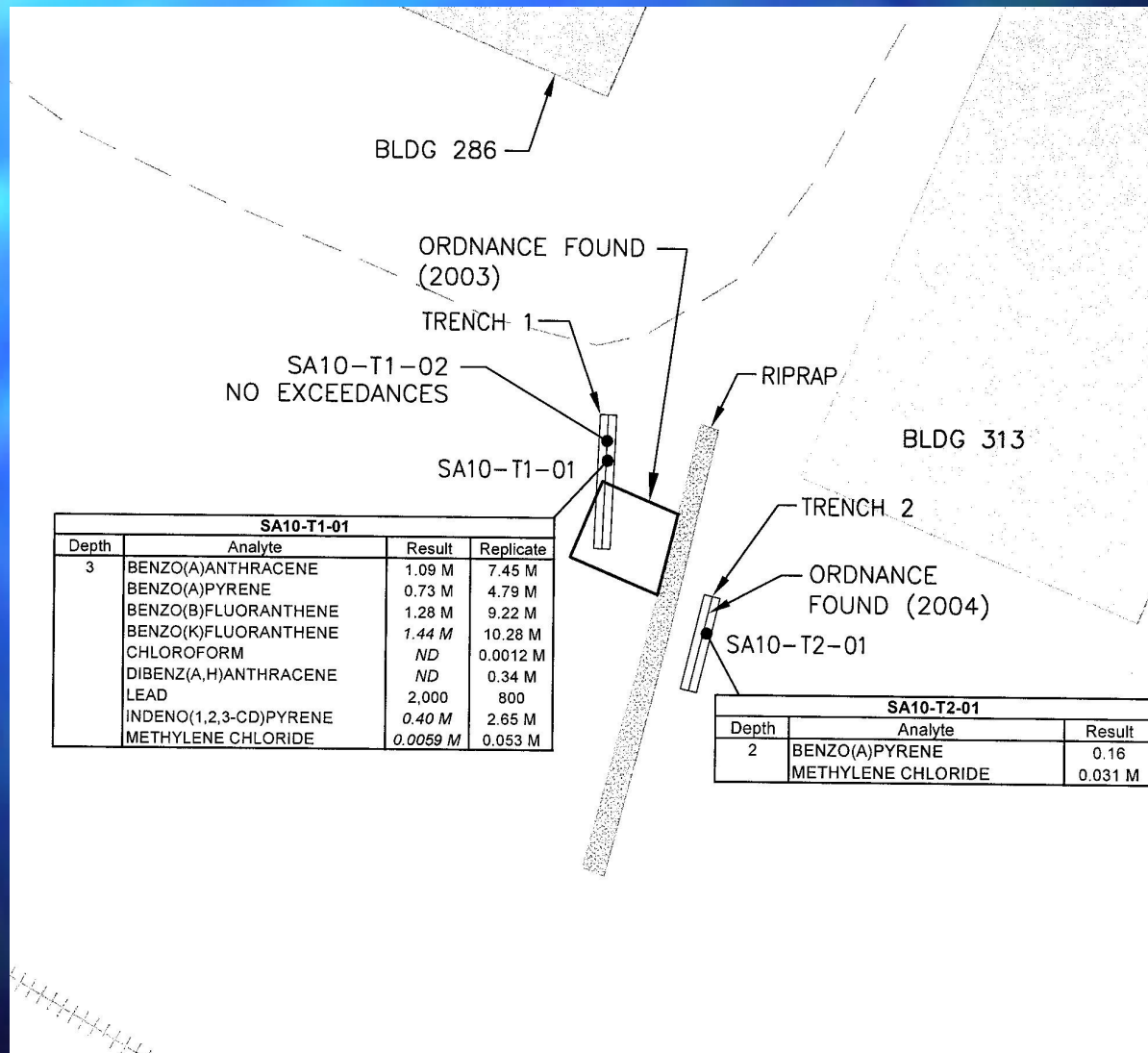
- Contractor uncovered Stoke mortars in 2003
- Base EOD uncovered more (total of 11); practice rounds
- Geophysical surveys delineated buried debris
- Test trenching, limited soil sampling in 2004; another Stokes encountered
- Debris/soil layer includes bricks, foundation stones, ash, metal debris



Study Area 10: Geophysics



Study Area 10 Soil Results



Building 945 / SS9

- Investigated as head of Plume E
- PCB and polynuclear aromatic hydrocarbons (PAHs) in soil
- Limited soil removal already performed
- Additional investigations using EPA's Triad initiative approach





Supplemental PA/SI Project

Questions?



MEETING LOGISTICS

November 15, 2005
Little America



ADJOURNMENT